



ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: RB211-22B BYPASS RATIO: 4.7
 UNIQUE ID NUMBER: 1RR003 PRESSURE RATIO (π_{00}): 25.0
 COMBUSTOR: Package 1
 ENGINE TYPE: TF RATED THRUST (F_{00}) (kN): 182.5

REGULATORY DATA

| CHARACTERISTIC VALUE: | HC | CO | NO _x | SMOKE NUMBER |
|--|-------|-------|-----------------|--------------|
| D _p /F ₀₀ (g/kN) or SN | 148.7 | 198.3 | 60.0 | 24.0 |
| AS % OF ORIGINAL LIMIT | 758.7 | 168.0 | 66.7 | 119.7 |
| AS % OF CAEP/2 LIMIT (NO _x) | | | 83.3 | |
| AS % OF CAEP/4 LIMIT (NO _x) | | | 101.7 | |
| AS % OF CAEP/6 LIMIT (NO _x) | | | 115.6 | |
| AS % OF CAEP/8 LIMIT (NO _x) | | | 139.3 | |

DATA STATUS

x PRE-REGULATION
 - CERTIFICATION
 x REVISED (SEE REMARKS)

TEST ENGINE STATUS

- NEWLY MANUFACTURED ENGINES
 - DEDICATED ENGINES TO PRODUCTION STANDARD
 x OTHER (SEE REMARKS)

EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE
 (ANNEX 16 VOLUME II)

CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)
 x OUT OF PRODUCTION (DATE: -)
 - OUT OF SERVICE (DATE: -)

MEASURED DATA

| MODE | POWER SETTING (%F ₀₀) | TIME (minutes) | FUEL FLOW (kg/s) | EMISSIONS INDICES (g/kg) | | | SMOKE NUMBER |
|--|-----------------------------------|----------------|------------------|--------------------------|-------------|-----------------|--------------|
| | | | | HC | CO | NO _x | |
| TAKE-OFF | 100 | 0.7 | 1.877 | 0.15 | 0.78 | 37.33 | 22.6 |
| CLIMB OUT | 85 | 2.2 | 1.546 | 0.25 | 1.68 | 26.89 | 19.8 |
| APPROACH | 30 | 4.0 | 0.566 | 5.96 | 20.65 | 8.18 | 12.3 |
| IDLE | 7 | 26.0 | 0.225 | 67.75 | 88.99 | 2.86 | 4.8 |
| LTO TOTAL FUEL (kg) or EMISSIONS (g) | | | 770 | 24653 | 34445 | 10545 | - |
| NUMBER OF ENGINES | | | | 7 | 7 | 7 | 7 |
| NUMBER OF TESTS | | | | 7 | 7 | 7 | 7 |
| AVERAGE D _p /F ₀₀ (g/kN) or AVERAGE SN (MAX) | | | | 134.8 | 188.5 | 57.8 | 22.6 |
| SIGMA (D _p /F ₀₀ in g/kN, or SN) | | | | 5.6 | 13.1 | 3.1 | 6.5 |
| RANGE (D _p /F ₀₀ in g/kN, or SN) | | | | 169.8-204.1 | 169.8-204.1 | 52.2-60.7 | 14.6-33.4 |

ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS
 STAGE BLEED 0 (% CORE FLOW) AT - POWER SETTINGS

ATMOSPHERIC CONDITIONS

| | |
|----------------------|---------------|
| BAROMETER (kPa) | 99.6-102.2 |
| TEMPERATURE (K) | 275-287 |
| ABS HUMIDITY (kg/kg) | 0.0033-0.0077 |

FUEL

| | |
|----------|-----------|
| SPEC | DERD 2494 |
| H/C | |
| AROM (%) | |

MANUFACTURER: Rolls-Royce plc
 TEST ORGANIZATION: NGTE, Pyestock, UK
 TEST LOCATION: British Airways Test Facility, Heathrow
 TEST DATES: 01/03/1979-01/04/1980

REMARKS

- Package 1 combustor.
- Tests performed on in-service engine(s), after overhaul.
- SN mode data scaled from 1RR002

Compliance with Fuel Venting requirements: - ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)